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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,569	10/09/2003	Stephen Craig	2380-773	9225

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
PANWALKAR, VINEETA S	
ART UNIT	**PAPER NUMBER**
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	**Application No.** 10/681,569	**Applicant(s)** CRAIG ET AL.	
	Examiner Vineeta S. Panwalkar	**Art Unit** 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2003*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-22,31,32 and 35-37* is/are rejected.
7)☒ Claim(s) *23-30,33,34 and 38-44* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *09 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *10/9/03,2/22/05*.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. (Fig. 1 is described as telecommunications network wherein frequency hopping sequences are allocated in conventional manner, implying that the elements of Fig.1 were known to the applicant at the time the current invention was made.) See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because it contains more than 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3a. Claim 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

Regarding claims 1 and 15, although the word “means” has not been explicitly used in the claims, both claims are drawn to a frequency hopping generator for use in a radio telecommunications systems. However, the frequency hopping generator is claimed to utilize only frequency offsets. No other means or steps are claimed and it is unclear from the claim language, how the frequency hopping generator operates or what components or means it comprises (besides the use of frequency offsets).

3b. Claims 2-14 and 16-18 are rejected under 35 U.S.C. 112, first paragraph, as being dependent on claims 1 and 15 respectively.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 13,14 and 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (US 6584140 B1), hereinafter, Lee.

4a. Regarding claims 1 and 19, Lee shows a frequency hopping sequence generator (Fig. 1A, output of synthesizer 23 is a frequency hopping sequence. Also, see Fig. 3) for use in a radio telecommunications system (See abstract and column 1, lines 18-25. The wireless mobile system is inherently a radio telecommunications system comprising mobile units and base stations or network nodes) which utilizes variable frequency offsets generated during a clocking of a time index and as a function of the time index to determine a frequency hopping sequence for use in communication between a mobile station and a network node (See Fig. 3 and column 7, lines 10-28. Processor 76 arranges the phase information into frequency offsets in accordance with the algorithm noted in this box. Unit 76 is under the control of the transmit frequency key control 20 which is supplied with clock timing by clock 78 to step through the aforementioned frequency hop channels. Thus, unit 76 provides frequency offset under the control clock timing by clock 78. Thus the frequency offset is generated during clocking. Since it is generated at a certain time when the clock provides a clocking signal (claimed time index), it is interpreted as being a function on the time index. This frequency offset is used in the generation of frequency hop sequence. Since the frequency offset is generated based on the time, it is interpreted as being variable).

Lee shows corresponding method steps as claimed in claim 19.

4b. Regarding claims 2 and 20, Lee further shows apparatus wherein:

- the frequency hopping sequence generator generates the variable frequency offsets on the fly as a function of the time index (See Fig. 3 and column 7, lines 10-28. Since the frequency offsets are generated based on the time and in response to a clocking signal, they are interpreted as being generated on the fly).

Lee shows corresponding method steps as claimed in claim 20.

4c. Regarding claims 3 and 21, Lee shows frequency hopping wherein

- the variable frequency offsets are chosen so that the frequency hopping sequence provides intra-cell interference diversity (Column 5, lines 47-67. A number of different frequency channels are used to transmit the frequency hopped data so as to resist jamming (Claimed interference). Thus the frequency hopped sequence is diversified by being sent over a number of different channels. Thus, within a cell interference diversity is provided and this is interpreted as claimed intra-cell diversity).

Lee shows corresponding method steps as claimed in claim 21.

4d. Regarding claims 4 and 22, Lee shows all the limitations claimed (See 4a above). Lee further shows the apparatus wherein:

- the frequency hopping sequence generator determines a frequency offset index which is mapped to one of plural possible frequency offsets (Column 5, lines 25-47. There are four possible frequency offsets available at any given time and only one is chosen. This is interpreted as claimed mapping to one of plural possible offsets), the frequency offset index being determined to provide the frequency hopping sequence with both interference diversity and orthogonality (Column 5, lines 47-67. A number of different frequency channels are used to transmit the frequency hopped data so as to resist jamming (Claimed interference). Thus the frequency hopped sequence is diversified by being sent over a number of different channels. Thus, within a cell interference diversity is provided and this is interpreted as claimed intra-cell diversity. Also see column 3, lines 20-30. Orthogonal frequency hopsets provide claimed orthogonality).

Lee shows corresponding method steps as claimed in claim 22.

4e. Regarding claim 13, Lee further shows apparatus wherein the frequency hopping sequence generator is situated at the network node (See abstract and column 1, lines 18-25. The wireless mobile system is inherently a radio telecommunications system comprising mobile units and base stations or network nodes and frequency hopping generator is inherently implemented at the network node as well as all mobile units).

4f. Regarding claim 14, Lee further shows apparatus wherein the frequency hopping sequence generator is situated at the mobile station (See abstract and column 1, lines 18-25. The wireless mobile system is inherently a radio telecommunications system comprising mobile units and base stations or network nodes and frequency hopping generator is inherently implemented at the network node as well as all mobile units).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 15, 16, 31, 32 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Noll Barreto et al. (US 6223048 B1), hereinafter, Noll.

5a. Regarding claims 15, 31 and 35, Lee shows a frequency hopping sequence generator (Fig. 1A, output of synthesizer 23 is a frequency hopping sequence. Also, see Fig. 3) for use in a radio telecommunications system (See abstract and column 1, lines 18-25. The wireless mobile system is inherently a radio telecommunications system comprising mobile units and base stations or network nodes) which utilizes variable frequency offsets to determine a frequency hopping sequence for use in communication between a mobile station and a network node, the variable frequency offsets being generated (1) as a function of a clocked time index(See Fig. 3 and column 7, lines 10-28. Processor 76 arranges the phase information into frequency offsets in accordance with the algorithm noted in this box. Unit 76 is under the control of the transmit frequency key control 20 which is supplied with clock timing by clock 78 to step through the aforementioned frequency hop channels. Thus, unit 76 provides frequency offset under the control clock timing by clock 78. Thus the frequency offset is generated during clocking. Since it is generated at a certain time when the clock provides a clocking signal (claimed time index), it is interpreted as being a function on the time index. This frequency offset is used in the generation of frequency hop sequence. Since the frequency offset is generated based on the time, it is interpreted as being variable).

Thus, Lee shows all the limitations claimed, but fails to explicitly mention whether the frequency offset is also a function of a unique integer assigned to the mobile station.

In the same field of endeavor, however, Noll shows method of generating a frequency-hopping sequence for radio communication wherein the frequency hopping sequence is generated by using a lookup table to get the frequency offset. The look up table is a function of a unique integer assigned to the mobile station. (See Abstract, column 1, line 20 – column 2, line 8.Since the mobile allocation index (MAI) specifies carrier frequency to be allocated within a carrier unit, it is interpreted as providing the offset required to give the necessary hop. The MAI for each time interval are calculated based on a lookup table. Noll shows how a unique international mobile subscriber identity number (claimed unique integer) is used to determine which look-up table to access. Thus, the frequency offset is calculated as a function of this number, as claimed).

Thus, it would have been obvious to a person of ordinary skill in the art to use Noll's subscriber identification number to uniquely identify a mobile number and to base the frequency offset on the number because it improves the frequency hopping sequence generation. (Column 1, lines 60-67).

Similarly, Lee and Noll show corresponding method steps as claimed in claims 31 and 35.

Regarding claim 35, Lee further shows the method comprising:

- allocating a set of frequency offsets to a cell (Column 5, lines 25-67. Since a set of predetermined frequency offsets are assigned to a set of predetermined phases in a cell, it is interpreted as claimed allocation of a set of frequency offsets to a cell (The wireless mobile system is inherently a radio telecommunications system comprising mobile units and base stations or network nodes with cells)).

5b. Regarding claim 16, Lee and Noll show all the limitations claimed (See 5a above). Lee further shows method wherein:

- the variable frequency offsets are chosen so that the frequency hopping sequence provides intra-cell interference diversity (Column 5, lines 47-67. A number of different frequency channels are used to transmit the frequency hopped data so as to resist jamming (Claimed interference). Thus the frequency-hopped sequence is diversified by being sent over a number of different channels. Thus, within a cell interference diversity is provided and this is interpreted as claimed intra-cell diversity).

5c. Regarding claims 32 and 36, Lee and Noll show all the limitations claimed (See 5a above). Lee further shows method wherein:

- the frequency hopping sequence generator generates the variable frequency offsets on the fly as a function of the time index (See Fig. 3 and column 7, lines 10-28. Since the frequency offsets are generated based on the time and in response to a clocking signal, they are interpreted as being generated on the fly).

5d. Regarding claim 37, Lee and Noll show all the limitations claimed (See 5a above). Lee further shows method comprising:

- mapping the frequency offset index to the selected frequency offset(Column 5, lines 25-47. There are four possible frequency offsets available at any given time and only one is chosen. This is interpreted as claimed mapping to selected offset).

Allowable Subject Matter

6. Claims 23-30, 33,34 and 38-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Coombes et al. (US 5153904) show a radio communication controller wherein the subscriber unit identification code is an integer.
- Bruin et al. (US 2003/0060209 A1) show how the use of frequent offset MAIO in frequency hopping ensures full adjacent channel interference diversity within and between cells (intra and inter).
- McCabe et al. (US 5913172) show frequency offset calculation corresponding to predetermined frequency offsets.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vineeta S. Panwalkar whose telephone number is 571-272-8561. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VP

JAY K. PATEL
SUPERVISORY PATENT EXAMINER